Proceedings of the Club

TUESDAY EVENING, FEBRUARY 13, 1900

President Brown in the chair. Eighteen persons present.

Dr. Rusby reported on the part of the Committee on Excursions an interesting field-day at Maplewood, N. J., with kind hospitalities enjoyed by the courtesy of Miss Idalette Carpenter, of Maplewood.

President Brown announced the Committees for the year 1900 as follows:

Committee on Finance, J. I. Kane, C. F. Cox; Committee on Admissions, Cornelius Van Brunt, Jeannette B. Greene, M.D., John K. Small, Ph.D.; Committee on Library and Herbarium, Per Axel Rydberg, Ph.D., Marie L. Sanial, Helen M. Ingersoll, Alice M. Isaacs; Committee on the Local Flora, Professor N. L. Britton, Ph.D.; Phanerogamia, Eugene P. Bicknell, H. H. Rusby, M.D., Rev. Geo. D. Hulst; Cryptogamia, Professor L. M. Underwood, Marshall A. Howe, Ph.D., Mrs. Elizabeth G. Britton; Committee on Excursions, Dr. L. Schoeney, Marie L. Sanial, Eugene Smith, George V. Nash, W. A. Bastedo; Committee on Program, Dr. H. H. Rusby, Dr. C. C. Curtis, Mrs. Elizabeth G. Britton.

The scientific program consisted of a paper by Dr. H. H. Rusby entitled "The Tendency of entomophilous Flowers to antero-posterior Irregularity." The paper was copiously illustrated by blackboard drawings, and its comparative review of floral irregularity in the various orders was aided by the distribution of printed lists with statistics.

The object of the paper was to show the distribution among and within the families of plants of cases of irregularity specially favoring insect-pollination. In this view, several types of irregularity were excluded from consideration as not having such origin. One such is irregularity in an ovary, as reflected in the fruit of *Mango*. Another is the necessary curving forward of such sessile flowers as those of *Piper*, closely pressed against, or even buried

in their rachis. Still another is the enlargement of one perigone-segment, to act as a scale, and in its absence, to protect the flower of a catkin, spike or other dense inflorescence, as seen in some species of *Eriocaulon*.

Other forms of irregularity, those with which the paper had properly to deal, were classified and shown to represent different degrees of modification. The lowest form was regarded as the simple curving upward of a horizontal or declined androecium or gynaecium, as seen in *Mirabilis*. The next involved an accompanying curvature of perigone, as in *Cyrtanthus*, then successively an oblique base or mouth, as in many Gesneriaceae, the distinction of the tube in varying degrees, as seen in the same family, the exaggeration or reduction of the anterior or posterior portion of the limb, as in *Chioscographia* or *Pteropetalon*, and in bilabiate corollas, the arrangement of such corollas to form radiant inflorescences, as in many Umbelliferae, variations in size as well as direction of anterior and posterior stamens, as in *Cassia*, and numerous forms of appendaging.

These forms were traced among the Monocotyledons and Dicotyledons respectively. None were found among the 21 lowest of the 43 families of Monocotyledons. Of the 10 next highest, 5 show none, 4 show slight or doubtful forms, while the highest, Liliaceae, with 197 genera, twice as many as the other 9 families combined, shows, amidst general regularity a few highly irregular genera, two of them simulating Orchidaceous forms. Of the 12 highest families, only 3 are regular. Five of the highest 6 are very irregular indeed, the highest, Orchidaceae, phenomenally so. It thus appears that an increased tendency to irregularity is indicative of higher development, but it is liable to occur in families and groups of families usually distinguished for its absence.

This principle was then shown to be even more clearly illustrated by the Dicotyledons. In the 53 lowest families, but 4 show irregularity. Only 1 of these is found among the first 39, and this is Aristolochiaceae, with a single irregular genus. Among the next 120 families, 27 show irregularity, and these are rather uniformly distributed among the others. Then come 19, several showing slight irregularity and one very irregular indeed. The next 17 are, with one exception, highly irregular, one of them

however, being so in only a few of its genera. The 11 highest families are very peculiar. While mostly regular, some of them are noted for irregularity, but this is so peculiarly adjusted in the inflorescence as to bring about the condition of regularity so far as the latter is concerned. Thus the daisy, while an inflorescence, is essentially a regular flower, by virtue of the arrangement of its irregular florets. It is also noticeable that as these ray flowers are usually pistallate, this arrangement reverses the position, so far as the head if concerned, of the distinctively pistillate portion. The various types of irregularity in composite flowers were discussed, and these were contrasted with other families exhibiting radiant inflorescences.

It was pointed out that irregularity was not a fundamental characteristic, but was readily called into existence by the exigencies of any group, or even species, and might be expected to develop anywhere. Special attention was called as illustrating this principle, to the marked irregularity of *Cotyledon gibbiflorum* and *Saxifraga sarmentosa*, species in notably regular genera. It was also noted as significant that the most irregular families, such as Leguminosae, might have extensive series of genera perfectly regular: also that almost exactly equal forms of irregularity might develop in families most widely separated, as the Liliaceae and the Capparidaceae. The fact that irregularity is more frequent in the higher families of the two classes is due to the fact that the essential property of such families is a greater power of adaptation, floral irregularity being only one manifestation of this character.

EDWARD S. BURGESS,
Secretary.